REMARKS

Claims 1, 5-6, 8-12, 14, and 19 have been amended to further particularly point out and distinctly claim the subject matter regarded as the invention. No new matter has been added. These claim amendments are not intended to reduce the scope of the original claims and are not made in response to the Examiner's recited prior art references. The text of dependent claims 2-4, 7, and 13 are unchanged, but their meaning is changed, because they ultimately depend from amended claims.

New claims 22 and 23 also particularly point out and distinctly claim subject matter regarded as the invention.

The 35 U.S.C. §112 Rejection

Claims 1-7 stand rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement. This rejection is respectfully traversed.

Claim 1 recites: "defining in the storage device information related to a first data structure within a plurality of copies of a second data structure". The Examiner stated, "[o]ne of ordinary skill in the art would not be able to make and use [the] instant invention because the relationship between the first data structure and the second data structure is unclear." Applicant respectfully disagrees. One of ordinary skill in the art would understand from the claim language that "information related to a first data structure" is being defined "within a plurality of copies of a second data structure."

In addition, the Examiner further stated that "[i]t is unclear whether the second data structure (i) includes information (ii) includes the same information as the first data structure." Applicant respectfully disagrees. As indicated in the specification, the present invention uses multiple copies of a data structure "to provide redundancy so that in the event one of the copies cannot be located or verified, the other copy can be used to rebuild the defective...copy," Page 1, Lines 25-27. Consequently, the specification contains a sufficient written description to enable one of ordinary skill in the art to make and use the claimed invention.

The Examiner also stated, "[o]ne of ordinary skill in the art cannot make and use the invention as it is unclear which data is corrupted." The Examiner further stated "a skilled artisan would not know how to rebuild the information in the first data structure by using a plurality of copies" since "there could be multiple copies of the information, or there could be one copy stored in a plurality of segments of the second data structure." Claim 1 has been amended to recite, in part, "rebuilding the information related to the first data structure using a *copy* of one of the plurality of copies of the second data structure upon corruption of *another copy* of one of the plurality of copies of the second data structure" (emphasis added). In view of the foregoing, it is respectfully asserted that claim 1 is now in condition for allowance.

Claims 2-7 are dependent from claim 1 and allowable for at least the same reasons as claim 1.

The 35 U.S.C. §102 Rejection

Claims 1-6, 8-12, and 15-19 stand rejected under 35 U.S.C. §102(b) as being allegedly

anticipated by Froemke et al. (U.S. Pat. No.: 5,239,640). This rejection is respectfully traversed.

Independent Claim 1

A proper §102 rejection requires that a single reference anticipate the claimed invention as a whole. Each and every element recited in the claimed invention must be disclosed by this single reference.

Claim 1 recites among other things:

defining in the storage device information related to a first data structure within a plurality of copies of a second data structure; and

rebuilding the information related to the first data structure using a copy of one of the plurality of copies of the second data structure upon corruption of another copy of one of the plurality of copies of the second data structure.

In the Office Action, the Examiner asserted that Fig. 1, Element 24, of Froemke discloses a "first data structure" and Fig. 1, Elements 22 and 26, disclose "a plurality of copies of a second data structure". Moreover, the Examiner asserted that "rebuilding information related to the first data structure using the plurality of copies of the second data structure upon corruption thereof" is also disclosed by Froemke at Col. 8, Line 67 through Col. 9, Line 10.

Applicant respectfully disagrees for at least two reasons. First, Element 22 (data storage area) and Element 26 (write staging storage) are not copies of each other because of the preempt function disclosed in Froemke at Col. 4, Lines 37-52, Col. 6, Lines 14-17, and Col. 8, Lines 32-44. Under the preemption function, changes to data stored in write staging storage 26 is

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sometimes purposely not performed on data stored in data storage area 22 in order to increase data handling speed. This results in different sets of data stored in write staging storage 26 and data storage area 22. Consequently, data storage area 22 and write staging storage 26 are not copies of each other.

Second, information related to Element 24 (check sum storage) cannot be rebuilt using a copy (e.g., write staging storage 26) of one of the plurality of copies of the second data structure upon corruption of another copy (e.g., data storage area 22) of one of the plurality of copies of the second data structure because source write staging storage 26 does not contain sufficient data to rebuild checksum storage 24 since its capacity is limited to between 2 Mbytes to 16 Mbytes (Froemke, Col. 6, Lines 57-69) and thus, holds subset of the data stored in checksum storage 24. Froemke discloses that DASD devices are typically about 500 megabytes and checksum storage is comprised of a DASD and should be as large as the largest DASD to be protected in Col. 6, Lines 30-34.

Since a proper §102 rejection requires that each and every element of a rejected claim must be disclosed by a single reference, Applicant therefore believes claim 1 is patentable over Froemke.

Dependent Claim 2

Claim 2 is dependent from claim 1 and patentable for at least the same reasons as claim 1.

In addition, Claim 2 recites, among other things: "[t]he method as claimed in claim 1 wherein...defining the information related to a first data structure includes updating the plurality of copies of the second data structure prior to the write operation." The Examiner stated that

Froemke discloses "defining the information related to a first data structure includ[ing] updating the plurality of copies of the second data structure prior to the write operation," citing Col. 6, Lines 44-50. Applicant respectfully disagrees. Froemke discloses a data storage system with a plurality of data structures. Moreover, Froemke does not disclose a method for recovering data in a storage device including "updating the plurality of *copies of a second data structure*" (emphasis added), as recited in claim 2. Since a proper §102 rejection requires that each and every element of a rejected claim must be disclosed by a single reference, Applicant therefore believes that claim 2 is patentable over Froemke.

Dependent Claim 3

Claim 3 is dependent from claim 1 and patentable for at least the same reasons as claim 1.

In addition, claim 3 recites: "[t]he method as claimed in claim 1 wherein defining the information related to a first data structure includes differentiating which of the plurality of copies of the second data structure has the most recent data." The Examiner stated that Froemke discloses "differentiating which of the plurality of copies of the second data structure has the most recent information," citing Col. 8, Lines 32-44. Applicant respectfully disagrees. Froemke discloses "a write preempt function [in which] write commands that are received by the write command processor are checked to determine if they are overwrites of data that is held in the staging storage area," Col. 8, Lines 32-36. However, Froemke does not disclose "differentiating which of the plurality of copies of the second data structure has the most recent information," as the Examiner stated. Since a proper §102 rejection requires that each and every element of a rejected claim must be disclosed by a single reference, Applicant therefore believes that claim 3 is patentable over Froemke.

Dependent Claim 4

Claim 4 is dependent from claim 1 and patentable for at least the same reasons as claim 1.

In addition, claim 4 recites among other things: "[t]he method as claimed in claim 1 wherein...at most one of the plurality of copies of the second data structure can be corrupted." The Examiner stated that Froemke discloses "at most one of the plurality of copies of the second data structure can be corrupted," citing Col. 4, Lines 37-43. Applicant respectfully disagrees. Froemke discloses a situation where new data is written to the same address as data held in a write staging storage area and "the first write is preempted by the second," Col. 4, Lines 40-41. Froemke does not disclose a method wherein "at most one of the plurality of copies of the second data structure can be corrupted," as recited in claim 4. Since a proper §102 rejection requires that each and every element of a rejected claim must be disclosed by a single reference, Applicant therefore believes that claim 4 is patentable over Froemke.

Dependent Claims 5 and 6

Claims 5 and 6 are dependent from claim 1 and patentable for at least the same reasons as claim 1.

In addition, claim 5 recites among other things: "[t]he method as claimed in claim 1 wherein...rebuilding the information related to the first data structure includes using one or more of the plurality of copies of the second data structure to rebuild the intended state of the first data structure after the corruption of one of the plurality of copies of the second data structure." The Examiner stated that Froemke discloses "rebuilding the information related to the first data structure includ[ing] using one or more of the plurality of copies of the second data structure,"

citing Col. 9, Lines 1-9. Applicant respectfully disagrees. Froemke only discloses recovery of data formerly stored in a failed data DASD assembly. Froemke does not disclose *"rebuilding* the information related to the first data structure…using one or more of the plurality of *copies* of the second data structure" (emphasis added), as recited in claim 5.

Claim 6 recites among other things: "[t]he method as claimed in claim 1 wherein…rebuilding the information related to the first data structure includes using one or more of the plurality of copies of the second data structure to find other file management structures after data corruption of one of the plurality of copies of the second data structure." For reasons similar to those explained above for claim 5, Froemke does not disclose or suggest a method wherein information related to one data structure is rebuilt "using one or more of the plurality of copies of the second data structure," as recited in claim 6.

Since a proper §102 rejection requires that each and every element of a rejected claim must be disclosed by a single reference, Applicant therefore believes that claims 5 and 6 are patentable over Froemke.

Independent Claim 8

Claim 8 recites "a method for recovering data in a memory" including among other things: "defining in a memory location of a data structure within a plurality of base block copies." For reasons similar to those explained above for claim 1, Froemke does not disclose or suggest "a data structure within a plurality of base block copies," as recited in claim 8. Since a proper §102 rejection requires that each and every element of a rejected claim must be disclosed by a single reference, Applicant therefore believes claim 8 is patentable over Froemke.

Dependent Claim 9

Claim 9 is dependent from claim 8 and patentable for at least the same reasons as claim 8.

In addition, Claim 9 recites, among other things: "[t]he method as claimed in claim 8 wherein...defining a memory location of a data structure within a plurality of base block copies includes updating the plurality of base block copies prior to a write operation." The Examiner stated that Froemke discloses "defining the information related to a first data structure includ[ing] updating the plurality of copies of the second data structure prior to the write operation," citing Col. 6, Lines 44-50. Applicant respectfully disagrees. Froemke discloses a data storage system with multiple data structures but does not disclose "[a] method for recovering data in a *memory*" (emphasis added) including "a plurality of *base block copies*" (emphasis added), as recited in claim 9. Since a proper §102 rejection requires that each and every element of a rejected claim must be disclosed by a single reference, Applicant therefore believes that claim 9 is patentable over Froemke.

Dependent Claim 10

Claim 10 is dependent from claim 8 and patentable for at least the same reasons as claim 8.

In addition, claim 10 recites: "[t]he method as claimed in claim 8 wherein defining a memory location of a data structure includes differentiating which of the plurality of base block copies has the most recent data." For reasons similar to those explained above for claim 3, Froemke does not disclose or suggest "differentiating which of the plurality of base block copies has the most recent data," as recited in claim 10. Since a proper §102 rejection requires that each

and every element of a rejected claim must be disclosed by a single reference, Applicant

therefore believes that claim 10 is patentable over Froemke.

Dependent Claim 11

Claim 11 is dependent from claim 8 and patentable for at least the same reasons as claim

8.

In addition, claim 11 recites among other things: "[t]he method as claimed in claim 8

wherein…at most one of the plurality of base block copies can be corrupted." For reasons

similar to those explained above for claim 4, Froemke does not disclose or suggest a method

wherein "at most one of the plurality of base block copies can be corrupted," as recited in claim

11. Since a proper §102 rejection requires that each and every element of a rejected claim must

be disclosed by a single reference, Applicant therefore believes that claim 11 is patentable over

Froemke.

Dependent Claim 12

Claim 12 is dependent from claim 8 and patentable for at least the same reasons as claim

8.

In addition, claim 12 recites among other things: "[t]he method as claimed in claim 8

wherein…rebuilding the location of the data structure includes using one or more of the plurality

of base block copies to rebuild the intended state of the data structure after corruption of one of

the plurality of base block copies." The Examiner stated that Froemke discloses "rebuilding the

information related to the first data structure includ[ing] using one or more of the plurality of

copies of the second data structure," citing Col. 9, Lines 1-9. Applicant respectfully disagrees.

Froemke discloses recovery of data formerly stored in a failed data DASD assembly but does not disclose "*rebuilding* the location of the data structure...using one or more of the plurality of *base block copies*" (emphasis added), as recited in claim 12. Since a proper §102 rejection requires that each and every element of a rejected claim must be disclosed by a single reference, Applicant therefore believes that claim 12 is patentable over Froemke.

Independent Claim 15

Claim 15 recites "a method for recovering data in a non-volatile memory" including among other things: "defining in the non-volatile memory a location of a data structure with at least two base block copies." For reasons similar to those explained above for claim 1, Froemke does not disclose or suggest "a data structure with at least two base block copies," as recited in claim 15. Since a proper §102 rejection requires that each and every element of a rejected claim must be disclosed by a single reference, Applicant therefore believes claim 15 is patentable over Froemke.

Dependent Claim 16

Claim 16 is dependent from claim 15 and patentable for at least the same reasons as claim 15.

In addition, claim 16 recites among other things: "[t]he method as claimed in claim 15 wherein...the base block copies are updated prior to a write operation." The Examiner stated that Froemke discloses "defining the information related to a first data structure includ[ing] updating the plurality of copies of the second data structure prior to the write operation," citing Col. 6, Lines 44-50. Applicant respectfully disagrees. Froemke discloses a data storage system

with a plurality of data structures does not disclose "[a] method for recovering data in a *non-volatile memory*" (emphasis added) including "at least two *base block copies*" (emphasis added), as recited in claim 16. Since a proper §102 rejection requires that each and every element of a rejected claim must be disclosed by a single reference, Applicant therefore believes that claim 16 is patentable over Froemke.

Dependent Claim 17

Claim 17 is dependent from claim 15 and patentable for at least the same reasons as claim 15.

In addition, claim 17 recites: "[t]he method as claimed in claim 15 wherein rebuilding the location of the data structure includes differentiating which base block copy has the most recent data." For reasons similar to those explained above for claim 3, Froemke does not disclose or suggest, "differentiating which base block copy has the most recent data," as recited in claim 17. Since a proper §102 rejection requires that each and every element of a rejected claim must be disclosed by a single reference, Applicant therefore believes that claim 17 is patentable over Froemke.

Dependent Claim 18

Claim 18 is dependent from claim 15 and patentable for at least the same reasons as claim 15.

In addition, claim 18 recites: "[t]he method as claimed in claim 15 wherein defining the location of the data structure includes selecting each of the base block copies so at most one can be corrupted." For reasons similar to those explained above for claim 4, Froemke does not

disclose or suggest a method wherein "at most one of the plurality of copies of the second data structure can be corrupted," as the Examiner stated. Since a proper §102 rejection requires that each and every element of a rejected claim must be disclosed by a single reference, Applicant therefore believes that claim 18 is patentable over Froemke.

Dependent Claim 19

Claim 19 is dependent from claim 15 and patentable for at least the same reasons as claim 15.

In addition, claim 19 recites among other things: "[t]he method as claimed in claim 15 wherein…at least one of the base block copies can be used to rebuild the intended state of the non-volatile memory before corruption thereof." The Examiner stated that Froemke discloses "rebuilding the information related to the first data structure includ[ing] using one or more of the plurality of copies of the second data structure," Col. 9, Lines 1-9. Applicant respectfully disagrees. Froemke discloses recovery of data formerly stored in a failed data DASD assembly. However, Froemke does not disclose a method wherein "at least one of the *base block copies* can be used to *rebuild* the intended state of the non-volatile memory" (emphasis added), as recited in claim 15. Furthermore, the data storage system in Froemke does not include non-volatile memory. Since a proper §102 rejection requires that each and every element of a rejected claim must be disclosed by a single reference, Applicant therefore believes that claim 19 is patentable over Froemke.

In view of the foregoing, it is respectfully asserted that the claims are now in condition for allowance.

The 35 U.S.C. §103 Rejection

Dependent claims 7, 13, 14, 20, and 21 stand rejected under 35 U.S.C. §103(a) as being allegedly unpatentable over Froemke et al., in view of See (U.S. Pat. No.: 6,170,066). This rejection is respectfully traversed.

Dependent Claim 7

Claim 7 is dependent from claim 1. Claim 1 recites: "[a] method for recovering data in a storage device comprising: defining in the data storage device information related to a first data structure with a plurality of copies of a second data structure; and rebuilding the information related to the first data structure using the plurality of copies of the second data structure upon corruption of the first data structure." Claim 7 recites: "[t]he method as claimed in claim 1 wherein the storage device includes pre-erased recovery blocks; and defining the information related to a first data structure includes writing the plurality of copies of the second data structure to the pre-erased recovery blocks." Consequently, since independent claim 1 is allowable, dependent claim 7 must also be allowable.

Furthermore, the Examiner stated that "Froemke '640 discloses the essential elements of the claimed invention except for pre-erased recovery blocks" and "[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Froemke '640 to include pre-erased recovery blocks as taught by See '066 for the purpose of providing a means to store data in a storage device comprising flash EEPROM." Applicant respectfully disagrees. A proper §103 rejection requires that the recited references teach or suggest the combination of elements in a rejected claim. Neither Froemke nor See teach or suggest the combination of the method for recovering data in a storage device as recited in claim 1 and pre-erased recovery

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blocks. Since an essential element of Froemke is a write preempt function in which new data is written to the same address as data held in a write staging storage area and "the first write is preempted by the second," Col. 4, Lines 40-41, it would not even be logical to modify Froemke to use pre-erased recovery blocks. Thus, the combination of Froemke and See are made in hindsight, and is therefore, an improper combination since it would not have been obvious to one of ordinary skill in the art to combine Froemke with the pre-erased recovery blocks taught by See.

In addition, as explained above, Froemke does not disclose or suggest a method of recovering data using "a plurality of copies of the second data structure," as recited in claim 7, instead of separate data structures. Thus, Froemke does not teach or suggest, or disclose, "the essential elements of the claimed invention except for pre-erased recovery blocks," as stated by the Examiner. See also does not teach or suggest a method of recovering data using "a plurality of copies of the second data structure," as recited in claim 7, instead of separate data structures.

Since a proper §103 rejection requires that the recited references teach or suggest the combination of elements in a rejected claim, Applicant therefore believes that claim 7 is patentable over the cited references.

<u>Dependent Claim 14</u>

Claim 14 is dependent from claim 8. Claim 8 recites: "[a] method for recovering data in a memory comprising: defining a memory location of a data structure within a plurality of base block copies; and rebuilding the memory location of the data structure using the plurality of base block copies in the event of data corruption of one of the base block copies." Claim 14 recites: "[t]he method as claimed in claim 8 wherein the memory includes pre-erased recovery blocks;

and defining a memory location of a data structure includes writing the plurality of base block copies to the pre-erased recovery blocks." Consequently, since independent claim 8 is allowable, dependent claim 14 must also be allowable.

Furthermore, the Examiner stated that "Froemke '640 discloses the essential elements of the claimed invention except for pre-erased recovery blocks" and "[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Froemke '640 to include pre-erased recovery blocks as taught by See '066 for the purpose of providing a means to store data in a storage device comprising flash EEPROM." Applicant respectfully disagrees. A proper §103 rejection requires that the recited references teach or suggest the combination of elements in a rejected claim. Neither Froemke nor See teach or suggest the combination of the method for recovering data in a memory as recited in claim 8 and pre-erased recovery blocks. Since an essential element of Froemke is a write preempt function in which new data is written to the same address as data held in a write staging storage area and "the first write is preempted by the second," Col. 4, Lines 40-41, it would not even be logical to modify Froemke to use pre-erased recovery blocks. Thus, it would not have been obvious to one of ordinary skill in the art to combine Froemke with the pre-erased recovery blocks taught by See.

In addition, for reasons similar to those explained above for claim 7, Froemke does not teach or suggest, or disclose, a method of recovering data using a "plurality of base block copies," as recited in claim 14, instead of separate data structures. See also does not teach or suggest a method of recovering data using a "plurality of base block copies," as recited in claim 14, instead of separate data structures.

Since a proper §103 rejection requires that the recited references teach or suggest the

combination of elements in a rejected claim, Applicant therefore believes that claim 14 is patentable over the cited references.

Dependent Claim 21

Claim 21 is dependent from claim 15. Claim 15 recites: "[a] method for recovering data in a non-volatile memory comprising: defining in the non-volatile memory a location of a data structure with at least two base block copies; and rebuilding the location of the data structure in the event one base block copy cannot be located or verified by using another base block copy." Claim 21 recites: "[t]he method as claimed in claim 15 wherein the non-volatile memory includes pre-erased recovery blocks; and the base block copies are written to pre-erased recovery blocks." Consequently, since independent claim 15 is allowable, dependent claim 21 must also be allowable.

Furthermore, the Examiner stated that "Froemke '640 discloses the essential elements of the claimed invention except for pre-erased recovery blocks" and "[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Froemke '640 to include pre-erased recovery blocks as taught by See '066 for the purpose of providing a means to store data in a storage device comprising flash EEPROM." Applicant respectfully disagrees. A proper §103 rejection requires that the recited references teach or suggest the combination of elements in a rejected claim. Neither Froemke nor See teach or suggest the combination of the method for recovering data in a non-volatile memory as recited in claim 15 and pre-erased recovery blocks. Since an essential element of Froemke is a write preempt function in which new data is written to the same address as data held in a write staging storage area and "the first write is preempted by the second," Col. 4, Lines 40-41, it would not even be logical to modify

Froemke to use pre-erased recovery blocks. Thus, it would not have been obvious to one of ordinary skill in the art to combine Froemke with the pre-erased recovery blocks taught by See.

In addition, for reasons similar to those explained above for claim 7, Froemke does not teach or suggest, or disclose, a method of recovering data using "base block copies," as recited in claim 21, instead of separate data structures. See also does not teach or suggest a method of recovering data using "base block copies," as recited in claim 21, instead of separate data structures.

Since a proper §103 rejection requires that the recited references teach or suggest the combination of elements in a rejected claim, Applicant therefore believes that claim 21 is patentable over the cited references.

Dependent Claim 13

Claim 13 is dependent from claim 8. Claim 8 recites: "[a] method for recovering data in a memory comprising: defining a memory location of a data structure within a plurality of base block copies; and rebuilding the location of the data structure using the plurality of base block copies in the event of data corruption of the first data structure." Claim 13 recites: "[t]he method as claimed in claim 8 wherein the data structure includes pointers to other data structures selected from a group consisting of remap information, wear-leveling tables, configuration data, recovery information, and a combination thereof." Consequently, since independent claim 8 is allowable, dependent claim 13 must also be allowable.

Furthermore, the Examiner stated that "Froemke '640 discloses the essential elements of the claimed invention except for pointers to other data structures" and "[i]t would have been

obvious to one of ordinary skill in the art at the time the invention was made to modify Froemke '640 to include pointers to other data structures as taught by See '066 for the purpose of indicating an empty data structure." Applicant respectfully disagrees. A proper §103 rejection requires that the recited references teach or suggest the combination of elements in a rejected claim. Neither Froemke nor See teach or suggest the combination of the method for recovering data in a memory as recited in claim 8 and pointers to other data structures. Thus, it would not have been obvious to one of ordinary skill in the art to combine Froemke with See. Even if Froemke and See were combined, See only suggests the use of pointers for the purpose of indicating full data blocks. Nothing in See teaches or suggests the embodiments of the present invention because the present invention is not limited to the use of pointers for the purpose of indicating full data blocks.

In addition, as explained above, Froemke does not teach or suggest, or disclose, a method for recovering data in a memory including "rebuilding the memory location of the data structure using the plurality of base block copies in the event of data corruption of one of the base block copies," as recited in claim 13. Thus, Froemke does not disclose "the essential elements of the claimed invention except for pointers to other data structures," as stated by the Examiner. See also does not teach or suggest a method for recovering data in a memory including "rebuilding the memory location of the data structure using the plurality of base block copies in the event of data corruption of one of the base block copies," as recited in claim 13.

Since a proper §103 rejection requires that the recited references teach or suggest the combination of elements in a rejected claim, Applicant therefore believes that claim 13 is patentable over the cited references.

Dependent Claim 20

Claim 20 is dependent from claim 15. Claim 15 recites: "[a] method for recovering data in a non-volatile memory comprising: defining in the non-volatile memory a location of a data structure with at least two base block copies; and rebuilding the location of the data structure in the event one base block copy cannot be located or verified by using another base block copy." Claim 20 recites: "[t]he method as claimed in claim 15 wherein the data structure includes pointers to other data structures selected from a group consisting of remap information, wear-leveling tables, configuration data, recovery information, and a combination thereof. Consequently, since independent claim 15 is allowable, dependent claim 20 must also be allowable.

Furthermore, the Examiner stated that "Froemke '640 discloses the essential elements of the claimed invention except for pointers to other data structures" and "[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Froemke '640 to include pointers to other data structures as taught by See '066 for the purpose of indicating an empty data structure." Applicant respectfully disagrees. A proper §103 rejection requires that the recited references teach or suggest the combination of elements in a rejected claim. Neither Froemke nor See teach or suggest the combination of the method for recovering data in a non-volatile memory as recited in claim 15 and pointers to other data structures. Thus, it would not have been obvious to one of ordinary skill in the art to combine Froemke with See. Even if Froemke and See were combined, See only suggests the use of pointers for the purpose of indicating full data blocks. Nothing in See teaches or suggests the embodiments of the present invention because the present invention is not limited to the use of pointers for the purpose of indicating full data blocks.

In addition, for reasons similar to those explained for claim 13 above, Froemke does not teach or suggest, or disclose, a method for recovering data in a non-volatile memory including "rebuilding the location of the data structure in the event one base block copy cannot be located or verified by using another base block copy," as recited in claim 20. Thus, Froemke does not disclose "the essential elements of the claimed invention except for pointers to other data structures," as stated by the Examiner. See also does not teach or suggest a method for recovering data in a non-volatile memory including "rebuilding the location of the data structure in the event one base block copy cannot be located or verified by using another base block copy," as recited in claim 20.

Since a proper §103 rejection requires that the recited references teach or suggest the combination of elements in a rejected claim, Applicant therefore believes that claim 20 is patentable over the cited references.

In view of the foregoing, it is respectfully asserted that the claims are now in condition for allowance.

The Prior Art References

The Examiner stated that "US Pat No. 5,664,096 issued to Ichinomiya et al discloses preventing data distortion caused by a power cut to a disk array" and "is considered pertinent to applicant's disclosure." Applicant respectfully disagrees. Ichinomiya is not pertinent to Applicant's disclosure. Ichinomiya defines "data distortion" as "[d]ata not actually written that is read by the host computer," Col. 1, Line 52. Thus, Ichinomiya does not teach or suggest recoverability of data as disclosed in the present invention.

The Examiner stated "US Pat No. 5,602,987 issued to Harari et al discloses transferring to nonvolatile Flash EEPROM memory on loss of power so that data in cache memory is not lost" and "is considered pertinent to applicant's disclosure." Applicant respectfully disagrees. Harari is not pertinent to Applicant's disclosure because Harari relies on "[a] relatively small size cache memory... [to] overcome the problem of data loss in the volatile cache memory during a power loss," Col. 13, Lines 28-31. Thus, Harari does not teach or suggest, and in fact teaches away from, the embodiments of the present invention because the present invention is not limited to volatile cache memory, the size of memory, or any other particular type of memory.
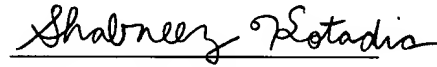
The Examiner stated that "US Pat No. 5,758,054 issued to Katz et al discloses determining whether a write operation was interrupted on loss of power and reconstructing any data that may be inconsistent because of the loss of power" and "is considered pertinent to applicant's disclosure." Applicant respectfully disagrees. Katz is not pertinent to Applicant's disclosure because Katz teaches data reconstruction "in RAID architectures [where] write requests translate into write operations on multiple disks," Col. 3, Lines 2-4. Thus, Katz does not teach or suggest data recovery as disclosed in the present invention because the present invention does not rely on RAID techniques or technology.

It is believed that the above-identified patent application is now in condition for allowance.

If, in the opinion of the Examiner, an interview would expedite the prosecution of this application, the Examiner is invited to call the undersigned attorney at the number indicated below.

Respectfully submitted,
BiTMICRO Networks, Inc.

Dated: 3/26/2004

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